

ELBUG

SUPPLEMENT TO BEEBUG

APRIL 1985 VOLUME 2 ISSUE 5

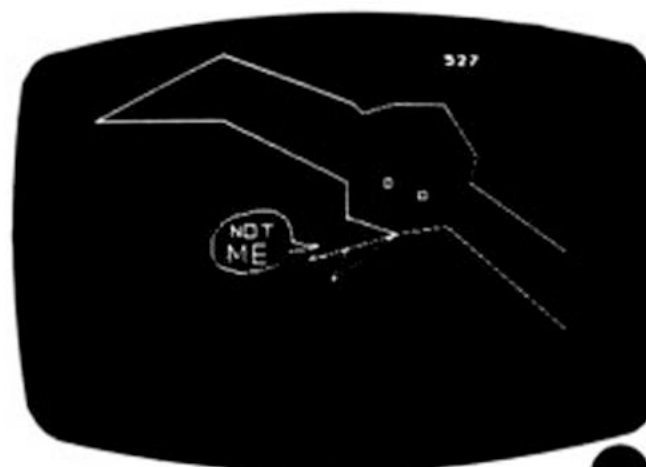
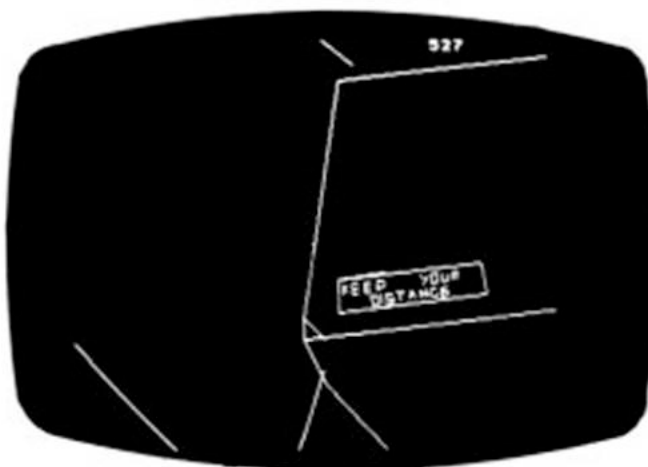
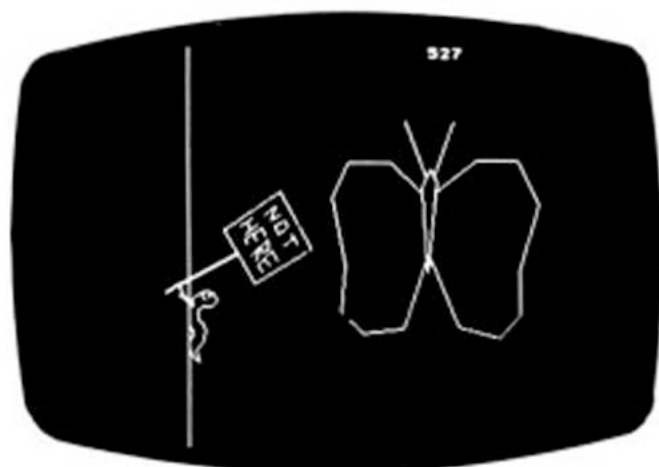
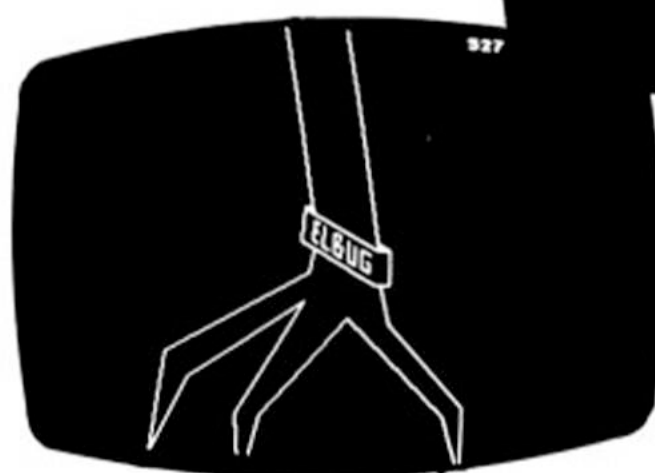
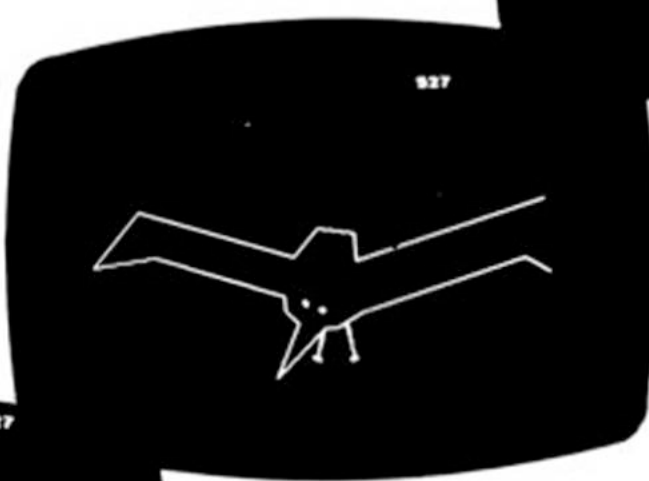
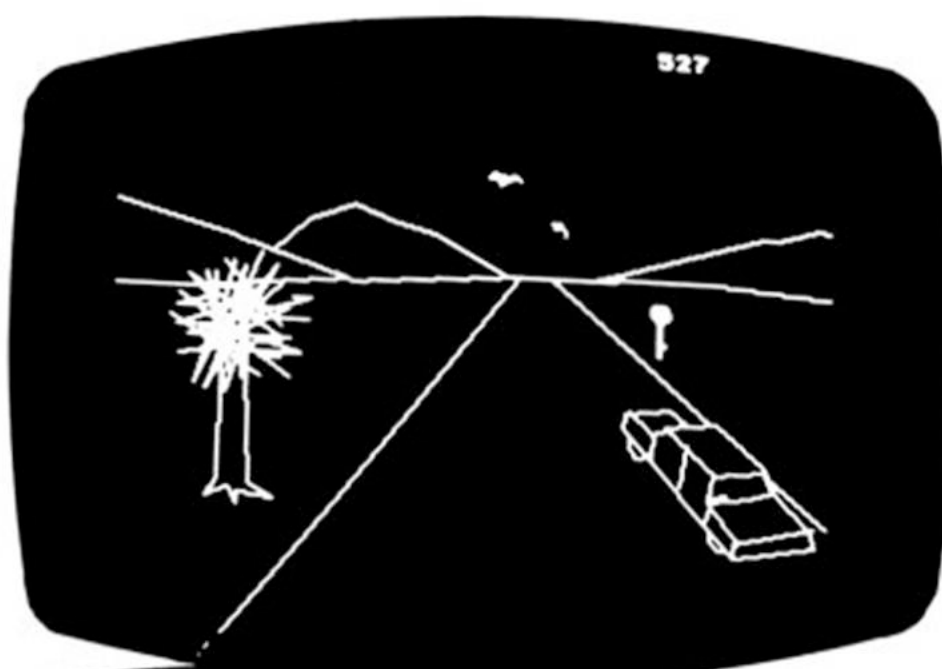
Zoom Competition Results

The December issue of ELBUG (Vol.2 No.2) held a challenge for all subscribers to the magazine cassette. The data file on the cassette held a picture in the right format for the marvellous Zoom program in that issue of the magazine. Hidden in the picture was the word ELBUG. The task was to find this word using the Zoom program.

We received many correct entries for this competition so the lucky winner was the first one out of the ELBUG editorial hat.

The winning entry came from Mrs. Judith Dent (and Daniel) from Kent, and they get the £25 of Elk software.

The word ELBUG was in fact written on the ring around one foot of one of the birds in the original picture, as these screenshots show. There were also some distracting 'red herrings' scattered around in the picture just to put you off the scent. We have reproduced these below as well. Many thanks to all who entered the competition and congratulations to Mrs. Dent. If you didn't manage to find the name in time, don't worry we will be having more competitions in the future. Meanwhile, have fun with the Zoom program.



Your Guide to BEEBUG

The programs and articles in the accompanying copy of BEEBUG are, in almost every case, useful to ELBUG members. However there are some changes that need to be made to the programs for them to work correctly on an Electron and some comments to be made on the articles and reviews.

Particularly, difficulties arise due to the frequent use of the mode 7 title and instruction screens in BBC micro programs. Mode 7 is not available on the Electron, but when the Electron encounters a MODE 7 command it defaults to a mode 6 screen. So, although you should, strictly speaking, change each occurrence of MODE 7 in a BBC program to MODE 6, this isn't really necessary because the Electron treats such commands as MODE 6 anyway. Mode 7 is of the same format as mode 6 but with a full range of colours and crude graphics. BBC micro programs that include a mode 7 display will usually run alright on the Electron but with a slightly corrupted (and monochrome) display. All BEEBUG and ELBUG programs have an error trapping routine which in BEEBUG programs takes you back to a mode 7 screen. These could also be changed to produce mode 6 when converting for the Electron but again it is not necessary to do so.

The other most common problem with converting BBC micro programs is that of sound. The Electron has only one sound channel, instead of the BBC micro's three, and no control over the volume of the sound. The Electron is designed so that BBC micro programs making full use of the SOUND command will run on the Electron, though not, of course, producing the full effect. So, again, things can usually be left as they are.

One difference between the Electron and the BBC micro that you cannot alter the programs to account for is the difference in speed. The Electron runs considerably slower than the Beeb in some circumstances. This will affect some programs but not all.

BEEB NEWS

More news of general interest to

ELBUG readers as well. The events in the BBC micro world will always affect Electron owners eventually, if not immediately.

OF MICE AND MICROS

AMS has no plans, at present, to release the AMX mouse in a version suitable for the Electron. More's the pity.

BACKWARDS TEXT

This novel and fun program will amuse ELBUG members as much as users of the BBC micro and is ideal for the Electron, so get gnipy!

HOMELINK

A revolutionary new banking system is of interest to anyone - even if they have no micro at all! The Nottingham Building Society and the Bank of Scotland make no discrimination between owners of different micros. You can join the Homelink scheme no matter what micro you own. Because there is, as yet, no modem available for the Electron, ELBUG members wanting to join this scheme would have to use the special Home Deck device hired or bought from NBS.

CASTLE QUEST

Castle Quest is not available for the Electron at the moment. However, Micro Power has always been a staunch supporter of the Electron in the past so we can but hope.

MIXING MODES

This excellent program for mixing different display modes on the screen at once will unfortunately not work on the Electron. The program accesses the Beeb's display controller and VIA timers which, in the Electron, are incorporated into the special custom chip in a different form. It may well be possible to produce a similar effect

on the Electron. Perhaps an ELBUG member can come up with the goods...

LOGO FOR THE BEEB

Of the four full-feature versions of Logo reviewed here only that from Acornsoft is available for the Electron - as a ROM cartridge for the Plus 1. Check out how Acornsoft Logo rates as a version of this fascinating programming language.

SPREADSHEET PROGRAM (Part 2)

This is the second part of the Spreadsheet program started last month. This part contains several expansions and embellishments to the basic spreadsheet program of part one. Like the first part, the complete spreadsheet program will operate quite correctly on an Electron. See also the review of Acornsoft's professional spreadsheet package, Viewsheets, in this issue of ELBUG.

BEEBUG WORKSHOP - SEARCHING AND SORTING (Part 1)

The ins and outs of searching and sorting lists of data is the subject of the Workshop for the next few months and everything said here is just as applicable to Electron owners.

The two sort routines given this month will work perfectly well on an Electron but the speed comparison program at the end of the article will not. This program pokes characters directly onto the BBC micro's mode 7 screen - something you cannot do in any of the other modes, 0 - 6. However you can still run this program to compare the speeds of the two sorting methods. Ignore the instruction to replace all occurrences of 'array()' with 'P%?()' and replace line 20 of the final program with this line:

```
20 DIM array(200)
```

Now the program will not show you the sorting procedure as it runs but it will still do the sort and present the resulting speed comparison.

UNDERSTANDING DISC FORMATTING

Not much for the ELBUG member here. Even if you own a Plus 3 disc drive add-on, these format discs in a different way to the drives used with

the BBC micro and so the problems mentioned here do not arise.

MAKING MUSIC ON THE BEEB (Part 3)

Ian Waugh's introduction to music is this month of less interest to ELBUG readers. Some of the general techniques discussed will help any budding Elk musician but the differences between the BBC micro and the Electron mean that none of the programs, nor aspects of using the SOUND command are workable on an Electron.

SCRABBLE

Leisure Genius' Scrabble is not available on the Electron.

CALCULATING THE LENGTH OF PROGRAMS

Lack of memory is as big a problem on the Electron as it is on the BBC micro. When writing a program that uses a lot of memory (say for large arrays) it is important to know just how much memory your program, or a section of your program, itself is taking up. That is what this program will tell you. It will work equally well on an Electron as it does on the Beeb.

BASIC IN DEPTH

Although these two books are aimed at users of the BBC micro, the general techniques described are as applicable to Electron owners.

BEGINNERS START HERE - INTRODUCING MACHINE CODE (part three)

This introduction to the world of machine code continues this month with a look at loops and branching instructions. Both the example programs will operate on the Electron. The second program, however, will not run quite as intended because it also uses the ability of the Beeb to poke characters directly onto a mode 7 screen. The default mode 6 screen that the Electron uses cannot handle this. Nevertheless the program will run and illustrate the point clearly. The reference in the text to page 486 of the BBC micro User Guide should be taken by ELBUG readers to mean page 285 of the Electron User Guide.

Parts one and two of this series appeared in BEEBUG Vol.3 Nos.8 and 9. and so may not have been seen by ELBUG readers. Photocopies of these articles

are available to ELBUG members for 30p each plus an A5, or larger, stamped addressed envelope, from the Editorial address.

POSTBAG

More letters from BEEBUG members. The comments of ELBUG members are always welcome too. Drop us a line to the Editorial address.

BRICKIE NICKIE

This unusual game will work as it stands on the Electron but can be greatly improved in three different areas. Firstly, when running on an Electron, the instruction screen is partly corrupted with strange symbols caused by the Elk trying to print the mode 7 control codes on the default mode 6 screen. Secondly, the key used to control the righthand kick is rather inconveniently placed on the Electron keyboard. Thirdly the whole program runs slowly on the Electron as it uses mode 2.

However, by making a few changes we can solve all these problems and make Brickie Nickie run much better. The control codes all appear in the program

listing as CHR\$ followed by a number in PROCinit. Simply remove these as you type in the program.

To change the righthand kick key to the Return key (much easier to reach on the Electron keyboard) make these alterations to the program listed in BEEBUG.

```
200 IFINKEY=74 kright=TRUE:PROCKick
2090 PRINT"TAB(7)"Z - Left X - Right
t"TAB(7)"* - UP ? - Down"TAB(3)SHIFT - Kick Return - Kick"TAB(11)"Left
Right"
```

Finally the program can be made to run in mode 5 with a great improvement in speed. Make these alterations:

```
130 MODE 5:VDU23,1,0;0;0;0;
1690 VDU31,DX%,DY%,17,0,L,L1,31,NDX%,DY%,17,3,L,L1:DX%=NDX%
1820 VDU31,LX%,LY%,17,3,L,L1
2500 IFFNpos(KX,KY)<>2 ENDPROC
2510 IF FNpos(OX,OY)<>2 AND FNpos(OX,OY+1)<>2 ENDPROC ELSE VDU31,OX,OY,32
2540 IF BT=2 VDU31,OX,OY,17,2,B
```

Now Brickie Nickie should give you hours of pleasure.

High Scores

Here is a complete list of the high scores on Electron games by ELBUG members. If you have done better on any of these games, or well on any other game for that matter, let us know soon and see your name in print.

Supplier	Game	Score	Player
AARDVARK	Zalaga	171500	D.Fell
A&F	Chuckie Egg	4078100	D.Anderson
A&F	Cylon Attack	56300	B.Wempe
A&F	Kamikaze	65310	J.Gault
ACORNSOFT	Arcadians	7960	J.Glazier
ACORNSOFT	Boxer	72840	P.Clarkson
ACORNSOFT	Dodgems	1759	J.Gault
ACORNSOFT	Freefall	692	D.Fell
ACORNSOFT	Hopper	19276	J.Glazier
ACORNSOFT	Meteors	42300	P.Haslam
ACORNSOFT	Monsters	114000	T.Shoaib
ACORNSOFT	Snapper	123890	C.Williams
ACORNSOFT	Starship Command	1075	M.Hall
ALLIGATA	Blagger	19450	G.Pointer
ALLIGATA	Bug Blaster	75814	A.Webster
ALLIGATA	Guardian	345300	J.Glazier
BEEBUGSOFT	Snake	4268	V.Hunt
ELBUG MAG	Block Blitz	17750	C.Burnside
ELBUG MAG	Breakout	27297	A.Webster
ELBUG MAG	Divebomber	32800	P.Haslam
ELBUG MAG	Evasion	39950	C.Burnside
ELBUG MAG	Galactic Inv.	81100	N.Morland
ELBUG MAG	Hedgehog	13495	R.Tacagni
ELBUG MAG	Hunt the No.	6250	P.Clarkson
ELBUG MAG	Invasion	10450	P.Haslam
ELBUG MAG	Mars Lander	7210	P.Haslam

Supplier	Game	Score	Player
ELBUG MAG	Munch Man	28460	D.Morland
ELBUG MAG	Robot Attack	6330	C.William
ELBUG CASS	3D Maze	712	A.Green
ELBUG CASS	Space City	144352	H.Buchanan
GEMINI	Missile Control	56980	J.Glazier
MICRO POWER	Croaker	17860	P.Warren
MICRO POWER	Cybertron	149500	P.Ellison
MICRO POWER	Danger UXB	683200	G.Peak
MICRO POWER	Felix / Factory	12000	L.Campbell
MICRO POWER	Felix / Monsters	34590	J.Gault
MICRO POWER	Frenzy	399248	A.Webster
MICRO POWER	Gauntlet	14490	D.Fell
MICRO POWER	Ghouls	1214	J.Glazier
MICRO POWER	Invaders	7900	I.McMillan
MICRO POWER	Killer Gorilla	112000	J.Holmes
MICRO POWER	Missile Control	2460	M.Gallagher
MICRO POWER	Moonraider	14430	P.Haslam
MICRO POWER	Positron	154340	P.Haslam
MICRO POWER	Swoop	17950	P.Warren
POSTERN	Pengwyn	4350	A.Green
SOFT INV.	Vortex	33603	A.Green
SOFT INV.	3D Bomb Alley	30670	P.Haslam
SUPERIOR	Invaders	13650	R.Tacagni
SUPERIOR	Percy Penguin	3280	J.Glazier
SUPERIOR	Mr.Wiz	36960	R.Tacagni
VISIONS	Dare Devil Den	26450	P.Warren

Keyboard Sounder

by Trevor Pullen

Make your Electron whistle while you work with this short routine to make use of the machine's powerful event handling facilities.

Although the Electron has an excellent quality keyboard it is often considered easier to use an electronic keyboard if there is some audio feedback associated with it - in other words if the keys bleep when you press them. That is just what this program will do. Not only that, but different keys are made to bleep at a different pitch.

The program is an example of the use of 'events' on the Electron and as such is a useful tutorial in its own right.

Type the program in carefully, paying particular attention to the assembler section. Save the program before you run it. It is possible that a mistake in your typing could crash the machine and lose the whole program. It is better to be safe than sorry.

Once the program has been run, your Electron's keyboard will produce a short note every time that a key is pressed. The pitch of the note is dependent on the ASCII value of the key pressed. Take a look at page 285 of the User Guide to see the ASCII values of the keys. A key that is held down will produce a rapid burst of notes as the auto repeat comes into action.

PROGRAM NOTES

This program uses a facility of the Electron known as 'events'. See page 242 of the User Guide for an explanation of events. This program uses the 'character entering keyboard buffer' event. That means that, once this event has been enabled, each time a character is put into the keyboard buffer an event is generated and our extra piece of machine code is called.

The character entering the keyboard buffer event is number 2 and is enabled by the section of code between lines

1050 and 1090. This performs the machine code equivalent of *FX14,2. The pointer to the routine (at location &220 and &221) is then set in lines 1100 to 1130.

The actual code that produces the bleep each time that a key is pressed is between lines 1150 and 1240. First all the processor registers are pushed on to the stack for safe keeping (line 1230) and then the ASCII code of the key pressed (now held in the accumulator) is doubled in value using the ROL instruction. This value is used as the frequency for the SOUND operation. All the other parameters of the SOUND statement have been set up, in lines 120 and 130, and the SOUND statement is performed in lines 1200 to 1220 (see page 238 of the User Guide).

Finally the registers are restored and the routine finishes with an RTS to return to the normal course of action of the operating system.

Now, before printing a character on the screen or taking any other such action when a key is pressed, the operating system first calls this extra routine to give a bleep at a pitch dependent on the ASCII value. This effect will continue until you press Break or type *FX13,2 which disables this event.

The routine is positioned to start in memory at location &B00. This is the function key buffer. Any attempt to use the function keys will destroy the routine. The location of the routine can easily be changed by altering the value assigned to P% in line 1020.

10 REM Program Bleeper
20 REM Version E1.1
30 REM Author Trevor Pullen

View and Viewsheet

Reviewed by David Otley

View has been a mainstay of Acornsoft's Beeb catalogue for a while now and Viewsheet, more recently released, has expanded the View 'family'. Now both packages are available on the Electron in cartridge form for the Plus 1. David Otley casts an experienced eye over the pair.

Product : View and Viewsheet
Supplier : Acornsoft
Price : £49.50 each

Acornsoft have now released versions of the View word processor and the Viewsheet spreadsheet on ROM cartridge for the Electron. These require the addition of the Plus 1 interface which provides two cartridge sockets and a printer interface (and a joystick port). Acorn also market a business pack consisting of the Electron, Plus 1 interface and both View and Viewsheet at a considerable saving on the separate cost. However this is not likely to interest ELBUG members who already have Electrons.

In addition the user will almost certainly need a printer and possibly a high resolution monitor and Plus 3 disc

drive. Nevertheless the business pack represents an economical route into serious computer use.

THE VIEW WORD PROCESSOR

This review is being written on the View word processor. As text is typed, it appears on the screen almost exactly as it will be printed out. In this case the right hand edge is neatly aligned, however the ragged edge more typical of the traditional typewriter can be set. Using a word processor is very like using an ordinary typewriter, only easier. You don't have to worry about returning the carriage at the end of each line as this is automatically taken care of. Neither do you have to bother too much about your typing accuracy as correcting errors, and adding, deleting and amending text is also very easy.

```

40 REM ELBUG April 1985
50 REM Program subject to Copyright
60 :
100 ON ERROR GOTO 1290
110 :
120 FOR I=1 TO 8:READ A:?(6F+I)=A:NE
XT
130 DATA 1,0,&F1,&FF,&C8,0,1,0
140 MODE 6
150 PROCassemble
160 CALL start
170 END
180 :
1000 DEF PROCassemble
1010 FOR PASS=0 TO 3 STEP 3
1020 P%=&0B00
1030 [
1040 OPT PASS
1050 .start
1060 CLD
1070 LDX #2
1080 LDA #14
1090 JSR &FFF4 \enable event
1100 LDA #(entry MOD 256)

```

```

1110 STA &220 \lo byte
1120 LDA #(entry DIV 256)
1130 STA &221 \hi byte
1140 RTS
1150 .entry
1160 PHA:TXA:PHA:TYA:PHA:PHP
1170 ROL A \double range
1180 STA &74 \save value
1190 LDX #&70
1200 LDY #0 \execute
1210 LDA #7 \SOUND
1220 JSR &FFF1 \instruction
1230 PLP:PLA:TAY:PLA:TAX:PLA
1240 RTS
1250 ]
1260 NEXT PASS
1270 ENDPROC
1280 :
1290 ON ERROR OFF
1300 MODE 6
1310 IF ERR<>17 REPORT:PRINT " at line
";ERL
1320 END

```


uses in business and financial work, but there are many other applications, particularly in scientific and engineering work.

The maximum size of sheet that can be accommodated is about 800 cells in mode 3 and 1600 cells in mode 6, thus allowing quite complex models to be set up, with a 200 cell model taking nearly a minute to save on tape. The program contains a very advanced 'windowing' system that allows up to 10 different parts of the sheet to be displayed on the screen at the same time - very useful for seeing the effects of changing the input data on the results of a calculation. Recalculation time is very short at around ten seconds for quite a large model.

Results can be sent direct to a printer, also using a windowing system, or spooled to a file for later incorporation in a document. Thus a table of results calculated using Viewsheet can be put into a report written on View, as in the example here. Together, the two packages form a powerful tool which can be used to assist in many tasks.

There is no doubt that both View and Viewsheet are highly professional packages which compare well with similar software sold for much more expensive machines. Within the constraints of the Electron's 32K memory there is little difference between the capabilities of these programs and those costing several hundred pounds and running on an IBM PC, or similar machine.

The accompanying manuals are generally excellent and both should get the new user started without too much difficulty. Nevertheless it should be pointed out that both packages have a wide range of advanced options and require careful study to get the most out of them, particularly Viewsheet. However, both give simple examples which enable the beginner to make a start and only move on to the extra features as and when required.

My only real criticism is a relatively minor one. Both packages use the Electron's FUNC key to assign different functions to most of the keys on the keyboard and a keystrip is provided to label them. However the functions seem to have been assigned to keys almost at random and prove difficult to find at first, although no doubt practice will make perfect! There is an attempt to make the two packages comparable when similar functions are used (e.g. cursor movement) but it seems a pity that the cursor keys are not used to control cursor movement (instead keys E,S,D and X are used in both programs).

Nevertheless there is no doubt that both programs represent excellent value for money. Those having access to a BBC computer at school or work but who use an Electron at home may be interested to know that data can be transferred to or from View and Viewsheet on that machine. The complete package is the lowest cost entry system into professional word processing and spreadsheet use of which I am aware. It is strongly recommended.

	A	B	C	D	E	F
.....1	Item	Quantity	Price	Net	VAT	Total inc
.....2						VAT
.....3						
.....4						
.....5	Widgets	50	5.00	250.00	37.50	287.50
.....6	Toggles	15	1.90	28.50	4.28	32.78
.....7	Nurdles	40	1.25	50.00	7.50	57.50
.....8	Gazooks	120	0.60	72.00	10.80	82.80
.....9	Flumps	20	2.50	50.00	7.50	57.50
.....10	Bits	150	0.25	37.50	5.62	43.12
.....11	Bobs	32	0.75	24.00	3.60	27.60
.....12						
.....13	TOTAL			512.00	76.80	588.80
.....14	=====	=====	=====	=====	=====	=====